

the furnace is in equilibrium with the atmospheric pressure may be changed to about the mid-height of the working door. This will produce the following results: the pressure at the level of the hearth of the furnace will be reduced below that of the atmosphere and will be (-0 mm 36), and air from outside the furnace will commence to flow into it under the door; the pressure at the top of the door will be diminished by one-half, becoming ($+0$ mm 36), and the loss of hot gases will be diminished correspondingly.

2. Hydrostatic pressure readily explains the irregular working of sloping grates in gas producers fired with wood. There is a current of gas with such a grate, as indicated by the arrow at the

17. right of Fig. 17. The negative pressure which exists at the level of the horizontal grate bars varies gradually until it becomes positive at the top of the sloping grate (compare with page 141), under which some of the gas commences to escape and burn, a pure loss of energy.

C¹) The decrease in the draft produced in

this manner also occurs with the

sloping grates used under boilers.

This is the reason why this type of grate has never been

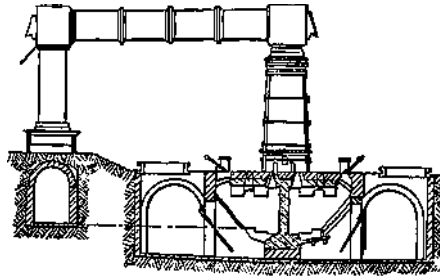


FIG. 18.

considered satisfactory with natural draft.

3. The existence of this hydrostatic pressure readily explains the draft of gas producers which operate without forced draft, with the Siemens siphon (Fig. 18). The gas from the producer passes up through

⁽¹⁾ With forced draft and a closed ash pit, sloping grates work comparatively well.

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